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EXAMINER	
SCOTT, RANDY A	

ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/797,152	BANERJEE ET AL.	
	Examiner	**Art Unit**	
	RANDY SCOTT	2453	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/28/10*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,10-28 and 30-36* is/are pending in the application.

4a) Of the above claim(s) *13-18 and 30-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7, 10-12,19-28, and 35-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed 6/23/2009

2. Claims 1, 19, 24, 28, and 35 are currently amended. Claim 8-9, 29, and 37 have been cancelled, and claims 13-18 and 30-34 have been withdrawn from consideration.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/28/10 has been entered.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re*

Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-4, 19-20, 23-27, and 35 are rejected under the judicially created doctrine of obviousness- type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 7,644,167, hereinafter ‘167. Although the conflicting claims are not identical, they are not patentably distinct from each other because the differences are obvious variations based on the fact that claims 1-12 of ‘167 contains obvious elements of claims 1-4, 19-20, 23-27, and 35 of the instant application and thus are not patentably distinct. Claims 1-4, 19-20, 23-27, and 35 of the instant application therefore are not patentably distinct from the earlier patent claims and as such are unpatentable over obvious-type double patenting. A later application claim is not patentably distinct from an earlier claim if the later claim is anticipated by the earlier claim.

Per claim 1 of the instant application, claims 1 and 4 of ‘167 also includes limitations for receiving a request for a desired service, applying a clustering algorithm to identify one or more of the closest service nodes of the plurality service nodes, determining whether information stored in a second node in the network receiving the request includes information for at least one service node configured to provide the desired service, wherein the information stored in the second node includes information about nodes physically close to the first node in the network; and expanding a search for a service node configured to provide the desired service to include information stored in at least one other node in the network until at least one service node is identified that is configured to provide the desired service.

Per claim 2 of the instant application, claims 5-6 of ‘167 also includes limitations for wherein the location information for the nodes is stored in a global information table in the DHT overlay network and wherein location information for the nodes in the network is stored in a distributed hash table (DHT) overlay network, such that location information for nodes physically close in the network is stored in a node in the DHT overlay network or a plurality of nodes close in the DHT overlay network.

Per claim 4 of the instant application, claim 4 of ‘167 also includes limitations for wherein the information stored in the second node includes information about nodes physically close to the first node in the network.

Per claim 19 of the instant application, claims 1 and 4 of ‘167 also includes limitations for receiving a request for a desired service, applying a clustering algorithm to identify one or more of the closest service nodes of the plurality service nodes, determining whether information stored in a second node in the network receiving the request includes information for at least one

service node configured to provide the desired service, wherein the information stored in the second node includes information about nodes physically close to the first node in the network; and expanding a search for a service node configured to provide the desired service to include information stored in at least one other node in the network until at least one service node is identified that is configured to provide the desired service.

Per claim 20 of the instant application, claim 7 of '167 also includes limitations for plurality of global landmark nodes and at least one local landmark node proximally located in the network to the first node.

Per claim 23 of the instant application, claim 4 of '167 also includes limitations for wherein the information stored in the second node includes information about nodes physically close to the first node in the network.

Per claim 24 of the instant application, claim 4 of '167 also includes limitations for means for receiving from a first node a request for a service node configured to provide a desired service, wherein the first node identifies a node to receive the request using location information for the first node; and means for identifying at least one service node configured to provide the desired service based at least on the location information for the first nodes, wherein the means for identifying identifies at least one service node configured to provide the desired service by determining whether the at least one service node includes a plurality of service nodes; in response to the at least one service node including a plurality of service nodes, applying a clustering algorithm to identify one or more of the closest service nodes of the plurality service nodes.

Per claim 25 of the instant application, claim 6 of '167 also includes limitations for

wherein the location information for the nodes is stored in a global information table in the DHT overlay network.

Per claim 26 of the instant application, claim 5 of ‘167 also includes limitations for wherein location information for the nodes in the network is stored in a distributed hash table (DHT) overlay network, such that location information for nodes physically close in the network is stored in a node in the DHT overlay network or a plurality of nodes close in the DHT overlay network.

Per claim 27 of the instant application, claim 7 of ‘167 also includes limitations for a plurality of global landmark nodes and at least one local landmark node proximally located in the network to the first node.

Per claim 35 of the instant application, claim 12 of ‘167 also includes limitations for receiving a request from a first node for a service node configured to provide a desired service, wherein the first node identifies a node to receive the request using location information for the first node; and identifying at least one service node configured to provide the desired service based at least on the location information for the first node, wherein identifying at least one service node configured to provide the desired service further includes determining whether the at least one service node includes a plurality of service nodes; in response to the at least one service node including a plurality of service nodes, applying a clustering algorithm to identify one or more of the closest service nodes of the plurality service nodes.

Although claims 1-12 of ‘167 contain additional limitations that do not appear in claims 1-4, 19-20, 23-27, and 35 of the instant application, it would have been obvious to a person having ordinary skill in the art to omit those extra limitations in view of official notice in order to

search stored information to identify a service node operable to provide a requested service by checking bandwidth data with the motivation of providing the benefit of teaching optimal service node allocation by specifying that bandwidth checking of each service is the basis on how the service node is selected. See In re Larson, 340 F.2d 965, 144 USPQ 347 (CCPA 1965) (Omission of additional framework and axle which served to increase the cargo carrying capacity of prior art mobile fluid carrying unit would have been obvious if this feature was not desired); and In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (deleting a prior art switch member and thereby eliminating its function was an obvious expedient).

Claim Rejections – 35 USC 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 35-36 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter.

Claim 35 is drawn computer software for performing various steps, which is non statutory subject matter because claim language must be drawn to a physical or tangible embodiment, such as a processor, hardware, or a device that contains structure. Computer software is considered non tangible and may be manufactured via preexisting code from a preexisting programming language, which does not meet the requirements of a statutory or tangible mechanism.

Claim 35 is also rejected under 35 USC 101 because claim 35 should recite a non-transitory computer readable media in order to distinguish the claimed computer readable media from non statutory subject matter, such a signals or carrier waves. The applicant could overcome this portion of the rejection by reciting the term “NON-TRANSITORY computer readable media”.

Claim Rejections – 35 USC 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Regarding claim 24, the word "means for" is preceded by the word(s) "A node in the network comprising" in an attempt to use a "means" clause to recite a claim element as a means for performing a plurality of specified functions. However, since no function is specified by the word(s) preceding "means for," within the applicant’s specification it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections – 35 USC 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained through the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a

> person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 6-7, 12, 24, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593), further in view of Alfonsi et al (US 5,491,690).

Regarding claims 1, 24, and 35, Hahn et al disclose:

Receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations claimed in this application), and storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location).

Hahn et al do not specifically teach searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service.

However, Busche provides the specified deficiencies, including searching the stored information to identify a plurality of service nodes (see col. 4, lines 22-25, which teaches locating a neighboring node that is capable to provide a service) operable to provide the

requested service in response to a service path not existing that is operable to provide the requested service (col. 5, lines 43-54).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Busche, in order to efficiently provide requested data routed through optimal paths with the motivation of providing the benefit of teaching an improvement upon optimal path and route searching by implementing node location service searching to perform a specific service.

Hahn et al and Busche fail to teach applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service and to further reduce the size of the set of candidate service nodes.

Alfonsi et al teach the specified deficiencies (see col. 11, lines 5-14, which discloses the Bellman-Ford algorithm for choosing a destination node that meets quality of service requirements and determining the minimum hop and path length and an updated algorithm used to reduce the number or eligible nodes for path calculation).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al and Busche with the general concept illustrated by Alfonsi et al, in order to successfully select a service node based on short hop from the requesting node with the motivation of providing the benefit of teaching an improvement upon service node selection by implementing an algorithm for selecting a node based on optimal location.

Regarding claim 6, Hahn et al disclose:

Wherein searching the stored information comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service or is operable to provide at least one of the requested services if a plurality of services are requested (see sec [0011], lines 3-6, which teaches performing a query to determine a route that has a server instance capable of handling the request and sec [0017], lines 2-5, which teaches determining if a particular route has failed).

With respect to claim 7, Hahn et al fail to teach wherein searching the stored information to determine whether a service path exists comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service and is within a predetermined distance to a node requesting the service.

Busche teaches the specified deficiencies (see col. 6, lines 1-5, which teaches predetermined shortest path determination for routers connected services to destination nodes).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Busche, in order to effectively route services to nodes in a network with the motivation previously addressed.

Regarding claim 12, Hahn et al disclose:

Wherein searching stored information comprises searching stored information for at least one of a service path and a service node operable to provide the requested service via a multicast in an application layer multicasting network (see sec [0018], lines 3-8, which teaches sing the

multicast protocol to send messages throughout each DSD agent to verify that each agent may be able to receive data via each route in the network, the procedure also checks for route failure, also see sec [0067], lines 1-3, which discloses that each DSD agent table contains server routes for each requested service).

5. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690) further in view of Aggarwal (US 2004/0221154).

With respect to claim 2, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, "global hash table") and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept of illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation of

providing the benefit of improving upon appropriate path selection by implementing a hash function.

With respect to claim 3, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, “global hash table”) and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 5-8).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 4, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at

the least location information and information associated with services provided for nodes in a distributed hash table overlay network, wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree, and wherein the global information table includes information for nodes physically close in the physical network.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, “global hash table”) and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 5-8), and wherein the global information table includes information for nodes physically close in the physical network (see sec [0013], lines 18-23, “physical network”).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 5, Hahn et al, Busche, and Alfonsi et al fail to teach wherein searching stored information comprises: searching the stored information to determine whether a service path or a service node exists that is operable to provide the requested service and satisfy a

QoS characteristic identified in the request, the QoS characteristic being associated with delivering the requested service.

Aggarwal teaches the specified deficiencies (see sec [0038], lines 2-6, “Qos”).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to efficiently transmit requested data along convenient paths in a network with the motivation previously addressed.

12. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690), further in view of Kumar (US 2005/0122904).

With respect to claim 10, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the request comprises information identifying a plurality of requested services and an order for delivering the requested services.

Kumar teaches the specified deficiencies (see sec [0027], lines 2-6, which teaches specifying one or more services being requested).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Kumar, in order to efficiently regulate directory control of nodes containing services with the motivation of providing the benefit of teaching service selection based on the QOS of the particular service node.

With respect to claim 11, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the request comprises information identifying at least one requested service and at least one QoS characteristic associated with delivering the requested service.

Kumar teaches the specified deficiencies (see sec [0022], lines 2-8, which teaches QOS based on service characteristics).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Kumar, in order to efficiently regulate directory control of nodes containing services with the motivation previously addressed.

14. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690) in view of Oom Temudo de Castro et al (US 2005/0030904), further in view of Cloonan et al (US 5,345,444).

Regarding claim 19, Hahn et al disclose:

Receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations claimed in this application), and

storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location).

Hahn et al do not specifically teach searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service.

However, Busche provides the specified deficiencies, including searching the stored information to identify a plurality of service nodes (see col. 4, lines 22-25, which teaches locating a neighboring node that is capable to provide a service) operable to provide the requested service in response to a service path not existing that is operable to provide the requested service (col. 5, lines 43-54).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Busche, in order to efficiently provide requested data routed through optimal paths with the motivation of providing the benefit of teaching an improvement upon optimal path and route searching by implementing node location service searching to perform a specific service.

Hahn et al and Busche fail to teach applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service and to further reduce the size of the set of candidate service nodes.

Alfonsi et al teach the specified deficiencies (see col. 11, lines 5-14, which discloses the Bellman-Ford algorithm for choosing a destination node that meets quality of service

requirements and determining the minimum hop and path length and an updated algorithm used to reduce the number or eligible nodes for path calculation).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al and Busche with the general concept illustrated by Alfonsi et al, in order to successfully select a service node based on short hop from the requesting node with the motivation of providing the benefit of teaching an improvement upon service node selection by implementing an algorithm for selecting a node based on optimal location.

With respect to claim 19, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node.

Oom Temudo de Castro et al teach the specified deficiencies (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource with the motivation of providing the benefit of teaching an improvement upon node path optimization by implementing node distance measurement.

Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al do not specifically teach wherein the at least one local landmark node is on a routing path to one of the global landmark nodes.

However Cloonan et al provide language for wherein the at least one local landmark node is on a routing path to one of the global landmark nodes (see col. 12, lines 44-48).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al with the general illustrated by Cloonan et al, in order to successfully implement path routing between network nodes with the motivation of providing the benefit of updating a path selection entity with the convenience of implemented landmark nodes.

With respect to claim 20, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

Oom Temudo de Castro et al teach the specified deficiencies, including wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, "predefined landmark nodes").

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource with the motivation previously addressed.

15. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690) in view of Oom Temudo de Castro et al (US 2005/0030904) in view of Cloonan et al (US 5,345,444), further in view of Matsubara (US 2004/0008687).

With respect to claim 21, Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al fail to teach storing a QoS characteristic associated with at least one of the plurality of nodes in the table.

Matsubara teaches the specified deficiencies (see sec [0017] and [0018], lines 1-3, which discloses QOS implementation of path data in a path table).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al with the general concept illustrated by Matsubara, in order to effectively access resources by managing path data with motivation of providing an improvement upon QOS path selection by implementing QOS data in a path table.

With respect to claim 22, Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al fail to teach storing at least one of a node identifier and a service path identifier for each of the plurality of nodes in the table.

Matsubara teaches the specified deficiencies (see sec [0036], lines 5-8 and sec [0040], lines 6-9, which teach destination IDs and identifying interfaces of the node that connect with network links).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of storing at least one of a node identifier and a service path identifier for each of the plurality of nodes in the table, as illustrated by Matsubara, in order to effectively access resources by managing path data with the motivation previously addressed.

With respect to claim 23, Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al fail to teach wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

Oom Temudo de Castro et al teach the specified deficiencies, including wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, "predefined landmark nodes").

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource with the motivation previously addressed.

16. Claims 25-29 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690), further in view of Aggarwal (US 2004/0221154).

With respect to claim 25, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network.

Aggarwal teaches the specified deficiencies (see sec [0029], lines 1-3, “global hash table” and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation of providing the benefit of teaching an implementation of adding hashing algorithms for QOS path analysis.

With respect to claim 26, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0029], lines 1-3, "global hash table" and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network) and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 6-9, which teaches the multicast tree's role in the overlay network).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 27, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network, wherein the distributed hash table overlay network is a

logical representation of a physical network including the multicast tree, and wherein the global information table includes information for nodes physically close in the physical network.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0029], lines 1-3, "global hash table" and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 6-9, which teaches the multicast tree's role in the overlay network), and wherein the global information table includes information for nodes physically close in the physical network (see sec [0029], lines 1-6).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 28, Hahn et al, Busche, and Alfonsi et al fail to teach a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic.

Aggarwal teaches the specified deficiencies (see sec [0038], lines 2-6, "QOS based on predefined routes").

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to

successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claims 29 and 36, Hahn et al, Busche, and Alfonsi et al fail to teach a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic.

Aggarwal teaches the specified deficiencies (see sec [0038], lines 2-6, “QOS based on predefined routes”).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

17. Response to Arguments

18. Applicant's arguments filed on 1/28/10 have been fully considered but are moot in view of new grounds of rejection.

A. In response to the applicant’s argument that the cited prior art does not disclose applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service and to further reduce the size of the set of candidate service nodes:

The applicant's arguments have been taken into consideration; however, Alfonsi et al (US 5,491,690) has been cited to teach and obvious combination with Hahn et al and Busche because Alfonsi et al provides a pre-existing algorithm for determining the closest preferred service node and reducing the amount of potential nodes meeting the criteria for selection. See col. 11, lines 5-14 of Alfonsi et al, which discloses the Bellman-Ford algorithm for choosing a destination node that meets quality of service requirements and determining the minimum hop and path length and an updated algorithm used to reduce the number or eligible nodes for path calculation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy A. Scott whose telephone number is (571) 272-3797. The examiner can normally be reached on Monday-Thursday 7:30 am-5:00 pm, second Fridays 7:30 am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas can be reached on (571) 272-6776. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RANDY SCOTT/

Examiner, Art Unit 2453

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/Philip J Chea/

Primary Examiner, Art Unit 2453